

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently amended) A jet in-flow communications with a reservoir comprising:

5 a substrate having a manifold for receiving fluid from the reservoir;

an orifice layer disposed above the substrate so that a plurality of chambers are formed between the orifice layer and the substrate; and

10 a plurality of nozzles that are disposed on the orifice layer and correspond to the plurality of chambers for ejecting the fluid in the chambers so as to form a plurality of droplets, each of the nozzles comprising:

15 an orifice formed on the orifice layer; and at least three distinct bubble generators

electrically connected to a driving circuit and disposed at a first side of the orifice and a second side of the orifice, at least two

20 of the bubble generators disposed at one of either the first side or the second side, and at least one of the bubble generators disposed

at the other of the first side and the second side, the driving circuit driving the bubble generator(s) disposed at the first side to

25 generate a first bubble in a corresponding chamber and driving the bubble generator(s) disposed at the second side to generate a second bubble in the corresponding chamber;

30 wherein the driving circuit drives the bubble generators selectively so that each of the nozzles is capable of ejecting droplets of different sizes.

Claim 2 (original) The jet of claim 1 wherein an interval between the manifold and the first side is less than an interval between the manifold and the second side.

5

Claim 3 (original) The jet of claim 2 wherein the first bubble is used as a virtual valve for restricting fluid between the first bubble and the second bubble to avoid flowing to the manifold when the second bubble is generated.

10

Claim 4 (original) The jet of claim 1 wherein each of the bubble generators is a heater, the driving circuit drives the heater(s) disposed at the first side to heat fluid in the corresponding chamber so as to generate the first bubble, and the driving circuit drives the heater(s) disposed at the second side to heat fluid in the corresponding chamber so as to generate the second bubble.

15

20

Claim 5 (original) The jet of claim 4 wherein an interval between the manifold and the first side is less than an interval between the manifold and the second side.

25 Claim 6 (original) The jet of claim 5 wherein the first bubble is used as a virtual valve for restricting fluid between the first bubble and the second bubble to avoid flowing to the manifold when the second bubble is generated.

30

Claim 7 (original) The jet of claim 4 wherein there is at least one heater disposed at the first side

and connected in series to one of the heater(s) disposed at the second side, wherein resistance of the heater disposed at the first side is greater than resistance of the heater disposed at the second side.

5

Claim 8 (original) The jet of claim 7 wherein each of the heater(s) disposed at the first side connects in series to one of the heater(s) disposed at the second side.

10

Claim 9 (original) The jet of claim 7 wherein at least two heaters are disposed at the first side, and each of the nozzles comprises a leading wire for connecting one of the heater(s) disposed at the second side with the heaters disposed at the first side, and the driving circuit applies a voltage on at least one of the heaters disposed at the first side to generate the first bubble and the second bubble simultaneously.

20

Claim 10 (original) The jet of claim 7 wherein at least two heaters are disposed at the second side, and each of the nozzles comprises a leading wire for connecting one of the heater(s) disposed at the first side with the heaters disposed at the second side, and the driving circuit applies a voltage on at least one of the heaters disposed at the second side to generate the first bubble and the second bubble simultaneously.

30

Claim 11 (original) The jet of claim 4 wherein there is at least one heater disposed at the first side

connected in parallel to one of the heater(s) disposed at the second side, wherein a resistance of the heater disposed at the first side is less than a resistance of the heater disposed at the second side.

5

Claim 12 (original) The jet of claim 4 wherein the orifice layer comprises at least two structure layers arranged in parallel, and there is at least one heater disposed on each of the structure layers.

10

Claim 13 (original) The jet of claim 12 wherein the droplets are ejected from the orifice along an ejection direction, and at least two of the heaters are disposed on the two structure layers linearly along the ejection direction.

15

Claim 14 (original) The jet of claim 1 wherein the droplets are ejected from the orifice along an ejection direction, and the bubble generators are disposed in parallel at the first side and the second side.

20

Claim 15 (original) The jet of claim 1 wherein the bubble generator(s) disposed at the first side are arranged along a first straight line, the bubble generator(s) disposed at the second side are arranged along a second straight line, and the first straight line is parallel to the second straight line.

25

30

Claim 16 (currently amended) A jet in flow communication with a reservoir comprising:

an orifice disposed above the reservoir;
 a first bubble generator group disposed at a first
 side of the orifice for generating a first bubble
 in the reservoir, ~~the first bubble is used as~~
 5 ~~a virtual valve to restrict fluid to avoid flowing~~
~~to the manifold;~~

a second bubble generator group disposed at a second
 side of the orifice for generating a second bubble
 in the reservoir, the first bubble and the second
 10 bubble squeezing fluid between the first bubble
and the second bubble out of the orifice to form
a droplet;

wherein the first bubble generator group or the
 second bubble generator group comprises at least
 15 two independently drivable bubble generators for
 generating the first bubble or the second bubble,
and the other of the first bubble generator group
or the second bubble generator group comprises at
least one distinct bubble generator.

20 Claim 17 (original) The jet of claim 16 wherein each
 of the bubble generators is a heater.

25 Claim 18 (original) The jet of claim 16 wherein an
 interval between the orifice and one of the two
 bubble generators is different from an interval
 between the orifice and the other one of the two
 bubble generators.

30 Claim 19 (New) The jet of claim 1 wherein a resistance
 value of each of the bubble generator(s) disposed
 at the first side is different from a resistance

A4
 cont'd

value of each of the bubble generator(s) disposed at the second side.

5 Claim 20 (New) The jet of claim 1 wherein each of the three bubble generators has a unique resistance value.

10 Claim 21 (New) The jet of claim 16 wherein a resistance value of each of the bubble generator(s) in the first bubble generator group is different from a resistance value of each of the bubble generator(s) in the second bubble generator group.

15 Claim 22 (New) The jet of claim 16 wherein each of the bubble generators in the first bubble generator group and the second bubble generator group has a unique resistance value.

20 Claim 23 (New) The jet of claim 16 further comprising a manifold for receiving fluid from the reservoir, wherein the first bubble is used as a virtual valve to restrict fluid to avoid flowing to the manifold.

25 Claim 24 (New) The jet of claim 16 further comprising a driving circuit electrically connected to the bubble generators and wherein each of the bubble generators is a heater, the driving circuit drives the heater(s) disposed at the first side to heat fluid so as to generate the first bubble, and the driving circuit drives the heater(s) disposed at the
30 second side to heat fluid so as to generate the second bubble.

Claim 25 (New) The jet of claim 24 wherein there is

A4
Cordell

at least one heater disposed at the first side and
connected in series to one of the heater(s) disposed
at the second side, wherein resistance of the heater
disposed at the first side is greater than resistance
5 of the heater disposed at the second side.

Claim 26 (New) The jet of claim 25 wherein each of the
heater(s) disposed at the first side connects in
series to one of the heater(s) disposed at the second
10 side.

Claim 27 (New) The jet of claim 25 wherein at least
two heaters are disposed at the first side, the jet
further comprising a leading wire for connecting one
15 of the heater(s) disposed at the second side with
the heaters disposed at the first side, and a driving
circuit applies a voltage on at least one of the
heaters disposed at the first side to generate the
first bubble and the second bubble simultaneously.

Claim 28 (New) The jet of claim 25 wherein at least
two heaters are disposed at the second side, the
jet further comprising a leading wire for connecting
one of the heater(s) disposed at the first side with
25 the heaters disposed at the second side, and a
driving circuit applies a voltage on at least one
of the heaters disposed at the second side to
generate the first bubble and the second bubble
simultaneously.

Claim 29 (New) The jet of claim 24 wherein there is
at least one heater disposed at the first side
30

Ad
Cont'd

connected in parallel to one of the heater(s) disposed at the second side, wherein a resistance of the heater disposed at the first side is less than a resistance of the heater disposed at the second side.

5

Claim 30 (New) The jet of claim 24 wherein the orifice is formed in an orifice layer comprising at least two structure layers arranged in parallel, and there is at least one heater disposed on each of the structure layers.

10

Claim 31 (New) The jet of claim 30 wherein the droplet is ejected from the orifice along an ejection direction, and at least two of the heaters are disposed on the two structure layers linearly along the ejection direction.

15

Claim 32 (New) The jet of claim 16 wherein the droplet is ejected from the orifice along an ejection direction, and the bubble generators are disposed in parallel at the first side and the second side.

20

Claim 33 (New) The jet of claim 16 wherein the bubble generator(s) disposed at the first side are arranged along a first straight line, the bubble generator(s) disposed at the second side are arranged along a second straight line, and the first straight line is parallel to the second straight line.

25

30